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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

MCCLAIN-COLEMAN, TYNESHA L.

ART UNIT

PAPER NUMBER

1789

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/588,591	Applicant(s) SOMSEN ET AL.	
	Examiner TYNESHA MCCLAIN-COLEMAN	Art Unit 1789	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 January 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,6,12,13 and 16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,6,12,13 and 16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The amendment filed January 11, 2011 is acknowledged. Claims 1, 6, 12-13, and 16 are pending in the application. Claims 2-5, 7-11, 14-15, and 17-29 have been cancelled.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1, 6, 12-13, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Buhler et al.* US 5192565 (hereinafter "*Buhler*") as evidenced by *Lindsay et al.* US 20050214411 (hereinafter "*Lindsay*") and in view of *Montgomery*, "Water Recycling in the Fruit and Vegetable Processing Industry," January 1981, Office of Water Recycling State Water Resources Control Board, pages 3-1 to 4-22 (hereinafter "*Montgomery*"). *Lindsay* is merely used to show the acrylamide suppressing properties of microorganisms disclosed by *Buhler*.

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5. With respect to claims 1, 6, 13, and 16, *Buhler* discloses blanching (heat treating) vegetables (Abstract) such as potato sticks (claim 16) (column 2, line 31) in water (active blanching medium) (column 2, lines 40-41) for 1 to 15 minutes at 80 °C to 95 °C (blanching conditions) (column 2, lines 35-36), cooling, fermenting (withdrawing reducing sugars) the vegetables in water (spent blanching medium) (Abstract) with *Lactobacillus plantarum* (sugar and asparagine withdrawing means) (claim 6) or *Leuconostoc mesenteroides* (sugar and asparagine withdrawing means) (column 2, lines 61-64), pasteurizing (heat treating) the potato sticks with at least part of the water of the fermentation step (active blanching medium) for 2 to 30 minutes at a temperature of at 80 °C to 110 °C (column 3, lines 41-45; and column 4, lines 56-58) (reusing active blanching medium).

6. As evidenced by *Lindsay*, microorganisms, such as bacteria from the species of *Lactobacillus* and *Leuconostoc*, suppress the formation of acrylamide in various high temperature heated foods by two mechanisms. First, the microorganisms assimilate (metabolize) the free sugars (especially glucose, fructose, and sucrose) that react with asparagine to produce acrylamide under elevated temperature conditions. Secondly, microorganisms may also assimilate (metabolize) free asparagine, thus removing a key precursor in the formation of acrylamide. Additionally, microorganisms may possess the specific enzyme, asparaginase, which would simply de-amidate asparagine to yield aspartic acid and ammonia, again removing a key precursor for acrylamide formation (paragraphs [0015-0016]). Therefore, *Lactobacillus plantarum* and *Leuconostoc*

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mesenteroides disclosed by *Buhler* converts the glucose, fructose, and asparagine present in the blanched potato sticks.

7. *Buhler* is silent with respect to an explicit blanching section. However, the potato sticks disclosed by *Buhler* were blanched in a blanching section as the vegetables were heat treated by immersion in water (column 2, lines 39-41).

8. *Buhler* does not disclose streaming spent blanching medium to a desugaring section, withdrawing the reducing sugars from the water after blanching (spent blanching medium) in a desugaring section which is separated from the blanching section, and streaming active blanching medium obtained from the desugaring section back into the blanching section.

9. *Montgomery* discloses obtaining blanched water (spent blanching medium), treating the used water (desugaring), and recycling the treated water (active blanching medium) back through the process, including the blanching step (blanching section) (Figures 3-2 and 3-3; and page 4-20). The blanched water is treated in a separate section (desugaring section) (Figures 3-2 and 33). The water used during processing may contact the product before, during, and after processing and may be incorporated into the finished product package (page 4-20). *Montgomery* also discloses there are a number of process water flow patterns used in recycling water in food processes (page 3-1, General) and combinations of recycling systems may be used (page 3-2, Combination Recycle)

10. Based upon the fact that *Buhler* and *Montgomery* similarly teach blanching vegetables with water, treating water, and water coming contact with the vegetables

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during processing and packaging, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the recycling mechanism disclosed by *Montgomery* into the method disclosed by *Buhler* with the expectation of successfully processing vegetables with recycled water. Also, reusing the blanching medium ensures the retention of some of the nutrients lost during blanching.

11. Regarding claim 12, *Buhler* does not disclose the reducing sugar content of the potato sticks after blanching is less than 0.25 wt. %.

12. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to optimize the blanched potato sticks disclosed by *Buhler* have a reducing sugar content of less than 0.25 wt. %.

13. One having ordinary skill in the art would have been motivated to do this because it is well known in the art that the fermentation step disclosed by *Buhler* metabolizes glucose and fructose and thus reduces the sugar content present in the potato sticks. Also, the amount of reducing sugar present in the blanched potato sticks is contingent upon the amount of microorganism (*Lactobacillus plantarum* or *Leuconostoc mesenteroides*) used, the amount of glucose, fructose, and sucrose present prior to fermentation, and the length of time the fermentation step is carried out.

14. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Buhler et al.* US 5192565 (hereinafter "*Buhler*") as evidenced by *Lindsay et al.* US 20050214411 (hereinafter "*Lindsay*") in view of *Montgomery*, "Water Recycling in the Fruit and Vegetable Processing Industry," January 1981, Office of Water Recycling

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State Water Resources Control Board, pages 3-1 to 4-22 (hereinafter "*Montgomery*") as applied to claim 1 above, and further in view of *Zyzak* US 20040058046 (hereinafter "*Zyzak*").

15. Regarding claim 12, *Buhler* in view of *Montgomery* does not disclose the content of reducing sugars after blanching is less than 0.25 wt. %.

16. *Zyzak* discloses preparing potatoes with low levels of reducing sugars (i.e. <1.5%) (paragraph [0061]).

17. Based upon the fact that *Buhler* and *Zyzak* similarly teach a reduction of acrylamide in the food product by treating the blanched product with a composition which reduces asparagine in the food product (*Zyzak*, paragraphs [0017], [0032], and [0033]), it would have been obvious to a person of ordinary skill in the art at the time the invention was made to prepare the potato sticks disclosed by *Buhler* in view of *Montgomery* with a reducing sugars content of < 1.5% as disclosed by *Zyzak*, which includes less than 0.25% as claimed by the applicant, with the expectation of successfully preserving the vegetables. Additionally, it is well known in the art that the fermentation step disclosed by *Buhler* metabolizes glucose and fructose and thus reduces the sugar content present in the potato sticks.

18. Claims 13 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Zyzak* US 20040058046 (hereinafter "*Zyzak*") in view of *Buhler et al.* US 5192565 (hereinafter "*Buhler*").

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19. With respect to claims 13 and 16, *Zyzak* discloses potato slices (claim 16) may be blanched in water (blanching medium) at 165 °F for fifteen seconds (blanching conditions) (paragraph [0350]). The potato slice blanching solutions (spent blanching medium) containing asparagine are pumped through a column comprising immobilized asparagine-reducing enzyme (paragraph [0105]). The enzyme (asparagine-withdrawing means) is capable of reducing the level of asparagine in food (paragraph [0021]). The effluent (active blanching medium) from the column is returned to the potato slices (paragraph [0105]).

20. *Zyzak* is silent with respect to explicitly blanching the potatoes in a blanching section. Since *Zyzak* discloses the potato slices were blanched in hot water (paragraph [0350]), it is expected that the potato slices disclosed by *Zyzak* were blanched in a blanching section.

21. However, *Zyzak* does not disclose treating the potato slice blanching solutions with a microorganism.

22. *Buhler* discloses blanching (heat treating) vegetables (Abstract) such as potato sticks (column 2, line 31) in water (column 2, lines 40-41) (column 2, lines 35-36), cooling, fermenting the vegetables in water (Abstract) with *Lactobacillus plantarum* or *Leuconostoc mesenteroides* (column 2, lines 61-64).

23. Based upon the fact that both *Zyzak* and *Buhler* similarly teach the a method of reducing the acrylamide content in food (*Zyzak*, paragraph [0006]), it would have been obvious to treat the potato slice blanching solutions disclosed by *Zyzak* with the *Lactobacillus plantarum* or *Leuconostoc mesenteroides* as disclosed by *Buhler* with the

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expectation of successfully reducing the acrylamide present in foods. Additionally, it is well known in the art that the *Lactobacillus plantarum* or *Leuconostoc mesenteroides* disclosed by *Buhler* may be used to reduce the acrylamide content of the heated food product.

Response to Arguments

24. Applicant's arguments filed January 11, 2011 have been fully considered.

25. Due to the amendments to claims 1, 6, and 13 as well as the cancellation of claim 29, all claim objections and 35 U.S.C. 112 rejections have been withdrawn (see page 5).

26. Applicant's arguments with respect to the rejection of claims 1, 6, 13, 16, 27, and 29 over *Buhler* and claim 2 over *Buhler* in view of *Montgomery* have been considered, but they are not persuasive.

27. Applicant argues *Buhler* does not disclose "reusing the active blanching medium" because *Buhler* discloses draining and washing the fruits and vegetables after fermentation. However, *Buhler* discloses at least part of the water obtained from the fermentation step is subjected to pasteurization with the fruits and/or vegetables, and the fruits and/or vegetables may be packaged along with at least part of the water obtained from the fermentation step (column 3, lines 40-45; and column 4, lines 56-58). In example 3, after blanching and fermenting the carrots, the carrots are not washed or drained, but instead are directly pasteurized with their water of fermentation before being packaged (column 6, lines 28-39).

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28. Applicant argues *Montgomery* itself is skeptical on the implementation of reuse of water in the food industry, and *Montgomery* is silent on any treatment for reducing sugar concentrations. Applicant also argues the combination of *Buhler* and *Montgomery* teaches away from the claimed invention. However, *Montgomery* is relied upon for the teaching of a recycling mechanism. *Montgomery* discloses obtaining blanched water (spent blanching medium), treating the used water, and recycling the treated water (active blanching medium) back through the process, including the blanching step (blanching section) (Figures 3-2 and 3-3; and page 4-20). While *Montgomery* discloses there are several concerns over sanitary requirements, *Montgomery* still discloses a system of recycling water which comprises treating and reusing water and the system may be used in blanching (page 3-2, Reuse; Figures 3-2 and 3-3; and page 4-20). Based upon the fact that *Buhler* and *Montgomery* similarly teach blanching vegetables with water, treating water, and water coming contact with the vegetables during processing and packaging, it would have been obvious to incorporate the recycling mechanism disclosed by *Montgomery* into the method disclosed by *Buhler* with the expectation of successfully processing vegetables with recycled water. Additionally, given that *Montgomery* discloses there are a number of process water flow patterns used in recycling water in food processes (page 3-1, General) and combinations of recycling systems may be used (page 3-2, Combination Recycle), it is clear that the method of *Buhler* and *Montgomery* comprises the steps of blanching fruits and/or vegetables, cooling/fermenting the fruits and vegetables in water (treatment), and

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recycling the treated water back through the process including the blanching section which is similar to the method claimed by the applicant.

29. Applicant argues neither *Montgomery* nor *Buhler* teaches the use of bacterial strains during blanching. However, it is noted that the features upon which applicant relies are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). In claim 1 of the instant invention, the bacterial strains are added to the spent blanching medium in the desugaring section which is separated from the blanching section.

30. Applicant argues there is no incentive to remove the reducing sugars from the food product since sucrose, glucose, or fructose is added to the water before fermentation in the method disclosed by *Buhler*. However, *Buhler* discloses particularly where a vegetable is relatively poor in fermentable sugar, up to about 2% of sucrose, glucose, or fructose, for example, may be added to the water before fermentation(column 3, lines 8-12), and glucose 0.25% glucose was added to the water in which the potatoes were fermented in example 5 (column 7, Table). Even though *Buhler* discloses adding sucrose, glucose, or fructose to the water prior to fermentation in the example, the addition of sucrose, glucose, or fructose is not required. Disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments (see MPEP 2123). Given that the method of *Buhler* comprises the steps of treating spent blanching water with *Lactobacillus* or *Leuconostoc* which is identical to the treatment claimed by the applicant, it is clear that

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the method disclosed by *Buhler* would intrinsically result in a water which has the reducing sugars glucose and fructose withdrawn absent any clear and convincing evidence to the contrary.

Conclusion

31. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

32. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

33. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TYNESHA MCCLAIN-COLEMAN whose telephone number is (571)270-1153. The examiner can normally be reached on Monday - Thursday 7:30AM - 5:00PM Eastern Time.

34. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on (571)272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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35. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TYNESA L MCCLAIN-COLEMAN/
Examiner, Art Unit 1789

/Jennifer C McNeil/
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